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Viral Change: Trends in Michigan Teacher Attrition and Mobility Before and During the COVID-19 Pandemic

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Overview

Educators and policymakers across the country have been raising alarms about a growing teacher shortage[1]. In Michigan, teacher shortages were so severe in the 2018-19 school year that 2,500 classrooms were staffed by long-term substitutes[2]—nearly ten times the number placed in classrooms five years prior.[3] The COVID-19 pandemic has raised even greater concerns about the supply of teachers, with several surveys of Michigan educators administered early in the COVID-19 pandemic indicating that a substantial proportion of full-time and substitute teachers are considering leaving the teaching profession due to pandemic-related concerns.[4]

In this study, we use administrative data from Michigan to understand how teachers' propensities to leave the public school system, switch districts, or switch schools shifted after the onset of the COVID-19 pandemic.

OUR KEY FINDINGS ARE AS FOLLOWS:

» Michigan teachers were more likely to leave the public school system or switch schools during the pandemic but less likely to switch to a new district. Following the 2020-21 and 2021-22 school years, teachers were 17 and 28 percent more likely to leave the Michigan public school system compared to the last full pre-pandemic school year, respectively. District switches decreased significantly less in all three pandemic-impacted school years. School switches increased by 14 percent in both 2020-21 and 2021-22.

» Teachers may have been more concerned with instructional modality offerings during the 2020-21 school year than COVID-19 incidence rates. Teachers in districts with the highest COVID-19 rates were less likely to leave teaching altogether than their peers in districts with low COVID-19 rates following initial school building closures. This seems counterintuitive given the discourse surrounding school reopening before fall 2020. However, teachers in fully remote districts were significantly less likely to leave the teaching profession or switch districts following the 2019-20 school year than teachers in entirely in-person districts.

» Attrition and mobility rates after each school year were generally consistent across racial/ethnic subgroups. Specifically, we find few significant differences in attrition and mobility by race/ethnicity, even when controlling for districts' instructional modalities.

» Novice teachers were more likely to exit the workforce during the pandemic than teachers with at least four years of teaching experience. Novice teachers were 3.4 percentage points more likely to leave the Michigan teacher workforce than teachers in the 2018-19 school year and between 1.0 and 1.5 percentage points more likely to leave than teachers with four or more years of experience.

Data & Methods

Our analysis sample includes more than 140,000 traditional public and charter school teachers who worked in Michigan for at least one year between 2012-13 and 2022-23. To understand how teachers' propensities to leave the school system, switch districts, or switch schools shifted during the COVID-19 pandemic, we use an Interrupted Time Series framework to investigate teacher attrition and mobility trends before and during the COVID-19 pandemic. This model allows us to predict attrition or mobility rates based on two or more explanatory variables (e.g., a specific teacher characteristic or the instructional modality offered by a district), focusing on how these outcomes shifted during the 2019-20, 2020-21, and 2021-22 school years relative to pre-existing trends.

WE IDENTIFY THREE TYPES OF RELEVANT TRANSITIONS IN OUR DATA:

» **Teachers who left the Michigan public school system** are identified from the date of termination indicator in the administrative data and the absence of a school employee's unique identifier in the following year(s)[5].

» **Teachers who switched districts** are teachers who switched to a new school in a new school district.

» **Teachers who switched schools** are those who switched to a new school within their current district.

Each indicator identifies exits from the public school teacher workforce and across- and within-district school switches that occurred at the completion of each school year. For example, our indicator for within-district school moves changes following the 2018-19 school year if a teacher working in school A during the 2018-19 school year moves to school B in the same district for the 2019-20 school year. While we can observe employment at the start of the 2022-23 school year, we cannot describe attrition or mobility that occurred at the conclusion of the 2022-23 school year without data from the 2023-24 school year, which is currently unavailable. Thus, we only report results for the 2019-20 through 2021-22 school years.

We examine overall differences in attrition and mobility during pandemic-affected school years. We assess how these rates vary by teacher (i.e., gender, race/ethnicity, experience as a teacher, or endorsement in a shortage area), school (i.e., proportion of economically disadvantaged or non-White students), district (i.e., instructional modality, employment at a charter school, and urbanicity), and community characteristics (i.e., COVID-19 incidence).

Our analyses use 7-day average COVID-19 rates per 100,000 individuals in the county. We assign teachers to low, medium, and high COVID-19 rate terciles based on the 7-day average COVID-19 rate observed for July 1, 2020.[6] We also assign teachers to each instructional modality type based on the modalities their assigned district offered in September 2020.[7] Given that districts were able to offer multiple instructional modalities each month during the 2020-21 school year, teachers working in a district that offered multiple instructional modalities in September 2020 were assigned to the "most in-person" option (i.e., fully in-person is the "most in-person" option, followed by hybrid and fully remote instruction in that order).

Findings

Our results below summarize estimates from models examining changes in attrition and mobility rates during the COVID-19 pandemic. Figure 1 summarizes baseline results for all three outcome measures. Figures 2 and 3 show how trends differed across teachers working in communities disproportionately affected by the pandemic and those in districts offering different instructional modalities at the height of the pandemic (Figure 2) and a subset of teacher-level characteristics (Figure 3).

MICHIGAN TEACHERS WERE MORE LIKELY TO LEAVE THE PUBLIC SCHOOL SYSTEM OR SWITCH SCHOOLS DURING THE COVID-19 PANDEMIC, BUT LESS LIKELY TO SWITCH TO A NEW DISTRICT

Figure 1 presents results from models estimating teacher attrition and mobility trends at the end of each school year before and during the COVID-19 pandemic. The vertical dashed line (2018-19) denotes the last full pre-pandemic school year. The solid lines in pre-pandemic school years represent existing teacher attrition and mobility trends before the state-wide school building closures in spring 2020, while the dashed lines show how these trends would have extended into the 2019-20 through 2021-22 school years should they have persisted in the absence of the COVID-19 pandemic. The point estimates on the solid lines in 2019-20, 2020-21, and 2021-22 show how teacher mobility and attrition trends changed during the COVID-19 pandemic relative to existing trends.

Prior to the spring 2020 school building closures, attrition rates were slightly decreasing (shown in the top panel). Attrition marginally declined after the 2019-20 school year; however, the decrease was slight and not statistically significant. However, after the 2020-21 and 2021-22 school years, teachers were 17% and 28% more likely to leave the Michigan public school system compared to the last full pre-pandemic school year, respectively.

By contrast, across-district school switches (shown in the middle panel) were increasing before the COVID-19 pandemic. District switches decreased significantly in all three pandemic-affected school years. Following the 2019-20 school year, district switches were 76% below the pre-pandemic trend. The rate of district switches rebounded after the 2020-21 and 2021-22 school years but remained significantly below the pre-pandemic trend (30% and 24% less than the share of district switches following the 2018-19 school year, respectively).

Last, we find that within-district school moves were declining prior to the onset of the COVID-19 pandemic but increased at the end of each pandemic-affected school year (shown in the bottom panel). These increases, however, were relatively small and not statistically significant in 2019-20. After the 2020-21 and 2021-22 school years, school switches significantly increased by 14% in both years relative to the pre-pandemic trend.

FIGURE 1. End-of-Year Trends in Attrition and Mobility; 2012-13 Through 2021-22
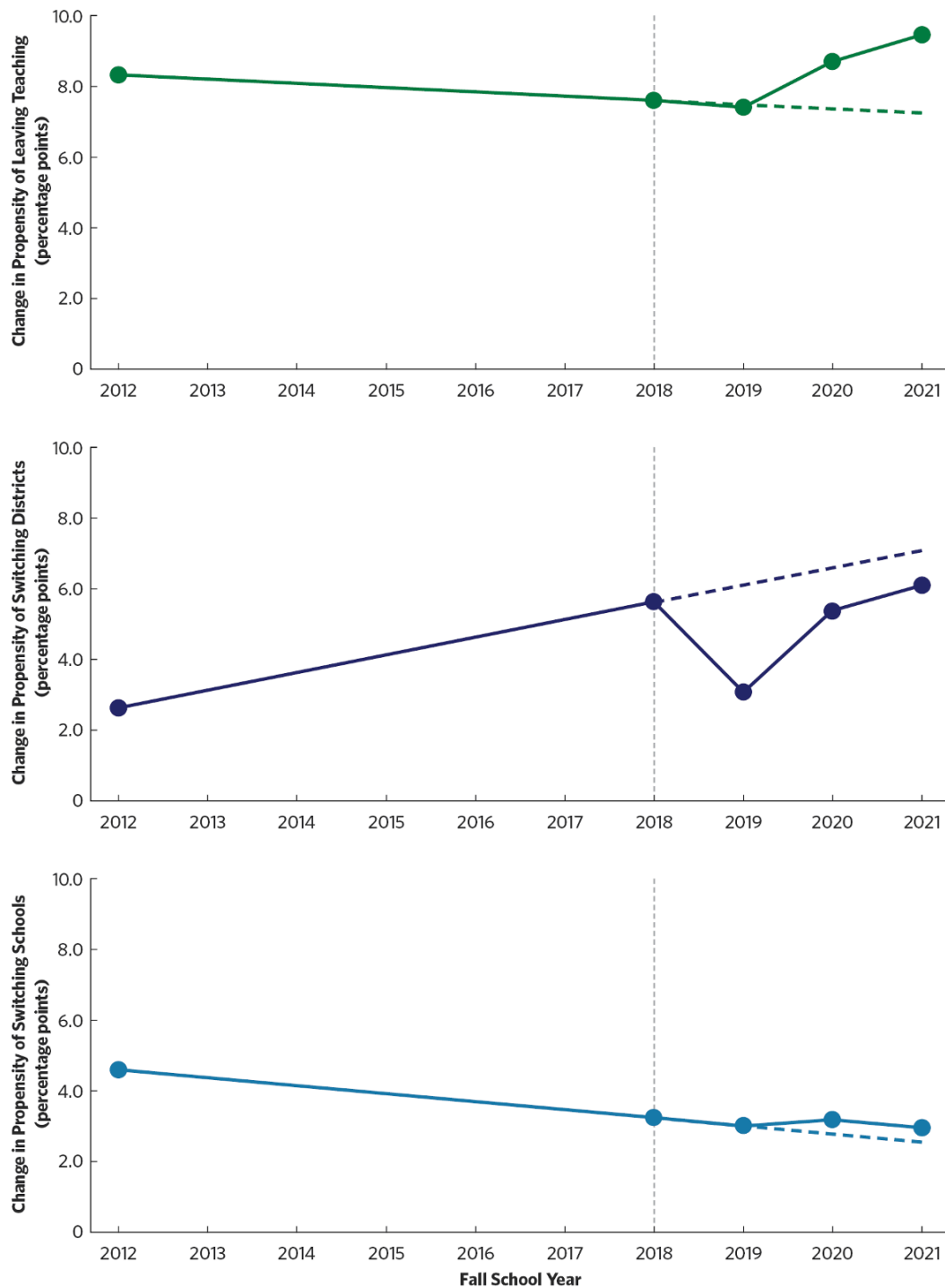
Notes: All samples include all Michigan public and charter school teachers with a teaching assignment in at least one school year between 2012-13 and 2022-23. The "leave teaching" sample includes all teachers with multiple school or district assignments. The "switch districts" and "switch schools" samples include all Michigan teachers with 100% FTE in their primary school or district, respectively. All models also include teacher-, school-, and district-level controls.

TEACHERS MAY HAVE BEEN MORE CONCERNED WITH INSTRUCTIONAL MODALITY OFFERINGS DURING THE 2020-21 SCHOOL YEAR THAN COVID-19 INCIDENCE RATES

Figure 2 shows results from models estimating changes in attrition and mobility trends for teachers working in communities disproportionately affected by the COVID-19 pandemic and those in districts offering different instructional modalities at the height of the pandemic. The point estimates in each panel present year-specific estimates of teacher attrition or mobility for each subgroup of teachers following the 2019-20, 2020-21, and 2021-22 school years relative to the pre-pandemic trend, represented by the zero line in each panel.

The top panel of Figure 2 highlights three trends. First, teachers in districts with the highest COVID-19 rates were less likely to leave teaching altogether than their peers in districts with low COVID-19 rates. However, these differences were only statistically significant after the 2019-20 school year. Second, teachers in communities with medium and high COVID-19 rates were less likely than their peers in low-COVID areas to leave their districts after the 2019-20 and 2021-22 school years. Notably, the overall increase in district mobility after the 2021-22 school year, documented in Figure 1, appears to be primarily driven by teachers in areas with the lowest COVID-19 rates. Third, and by contrast, teachers' propensities to switch schools during the COVID-19 pandemic do not differ based on the prevalence of COVID-19 in their communities.

These results seem counterintuitive given the discourse surrounding school reopening prior to fall 2020.[8] The communities in Michigan most affected by the COVID-19 pandemic, however, were also the most likely to offer fully remote instruction throughout the 2020-21 school year[9]. Thus, it is possible that teachers were more concerned with the instructional modalities districts offered during the 2020-21 school year than community-level incidence rates of COVID-19 when deciding to leave the teaching profession entirely or switch districts.

The bottom panel of Figure 2 examines attrition and mobility trends separately for teachers working in fully in-person, hybrid, and fully remote districts. Unsurprisingly, given the correlation between COVID-19 incidence and instructional modality offerings, the patterns in this panel are nearly identical to those previously discussed. Specifically, teachers in fully remote districts were significantly less likely to leave the teaching profession or switch districts following the 2019-20 school year compared to teachers in fully in-person districts. We also find no significant differences in within-district school switches across modalities.[10]

ATTRITION AND MOBILITY RATES ACROSS RACIAL/ETHNIC SUBGROUPS WERE GENERALLY CONSISTENT AFTER EACH COVID-19 PANDEMIC SCHOOL YEAR

To understand how teacher mobility and attrition trends differed across subgroups of teachers during the COVID-19 pandemic, Figure 3 shows models estimating changes in attrition and mobility trends across teacher race/ethnicity and experience level. Given the relationship between mobility trends and the instructional modalities districts offered, the estimates shown in Figure 3 also control for the instructional modalities districts offered at the start of the 2020-21 school year.

We find few significant differences in attrition and mobility by race/ethnicity, even when controlling for districts' instructional modalities. Specifically, attrition rates after each school year were generally consistent across subgroups, with some slight differences for specific groups and outcomes. Black teachers were consistently less likely than White teachers to switch districts after all three pandemic-era school years. Latino teachers were also significantly less likely than their White peers to move districts after the 2019-20 and 2020-21 school years, though this was not the case after the 2021-22 school year. Finally, Black teachers were less likely to switch schools after the 2019-20 and 2020-21 school years, while all other groups did not significantly differ from the pre-pandemic trend. Together, these results indicate that Black and Latino teachers were less likely than White teachers to switch schools and districts during the pandemic and not significantly more or less likely to exit the workforce entirely. This alleviates some concerns about the pandemic exacerbating the shortage of teachers of color.

FIGURE 2. End-of-Year Trends in Attrition and Mobility by County-Level COVID-19 Cases and District-Level Instructional Modality
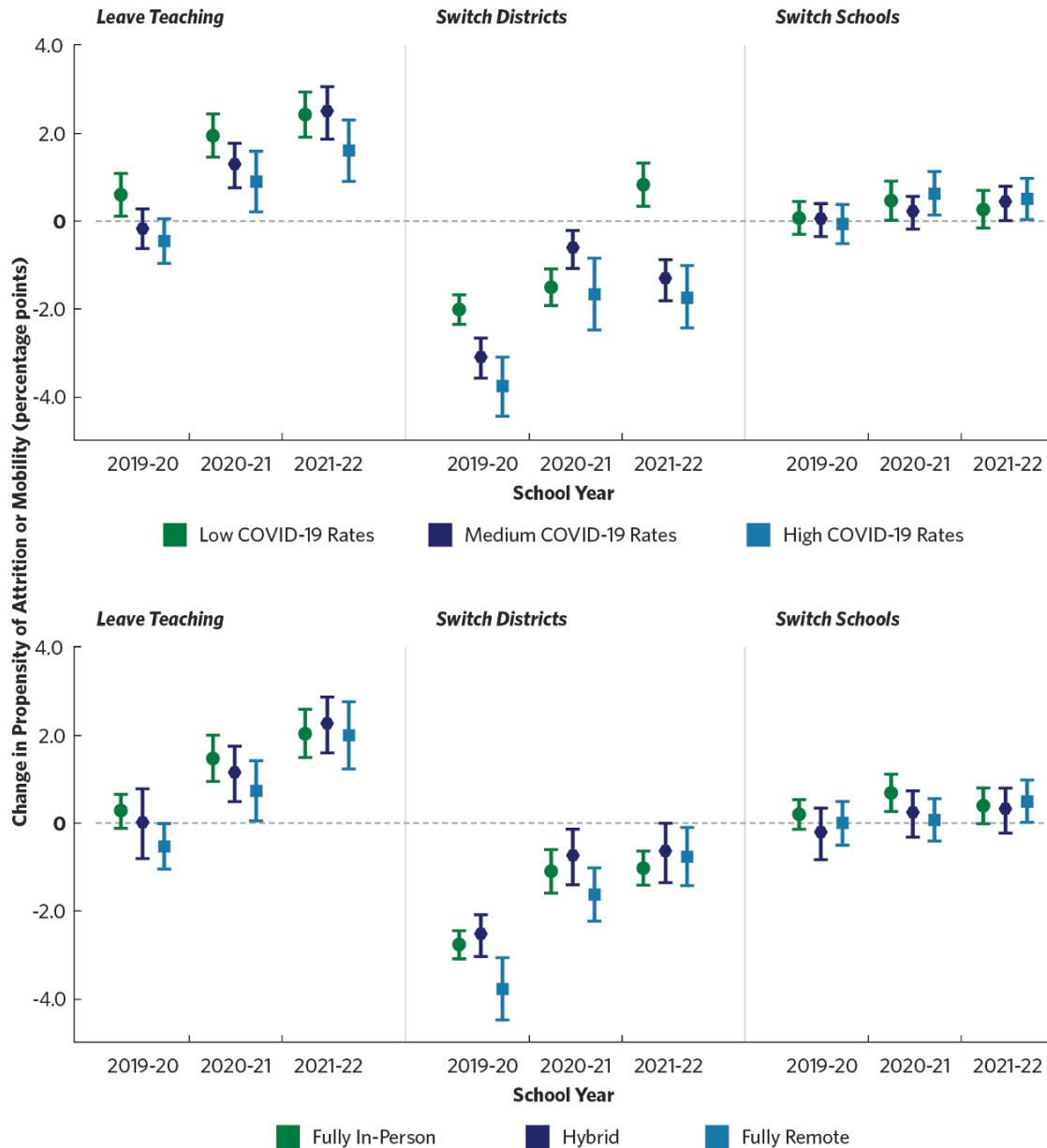
Notes: All samples include all Michigan public and charter school teachers with a teaching assignment in at least one school year between 2012-13 and 2022-23. The "leave teaching" sample includes all teachers with multiple school or district assignments. The "switch districts" and "switch schools" samples include all Michigan teachers with 100% FTE in their primary school or district, respectively. All models also include teacher-, school-, and district-level controls.

FIGURE 3. End-of-Year Trends in Attrition and Mobility by Teacher Race/Ethnicity and Experience Level
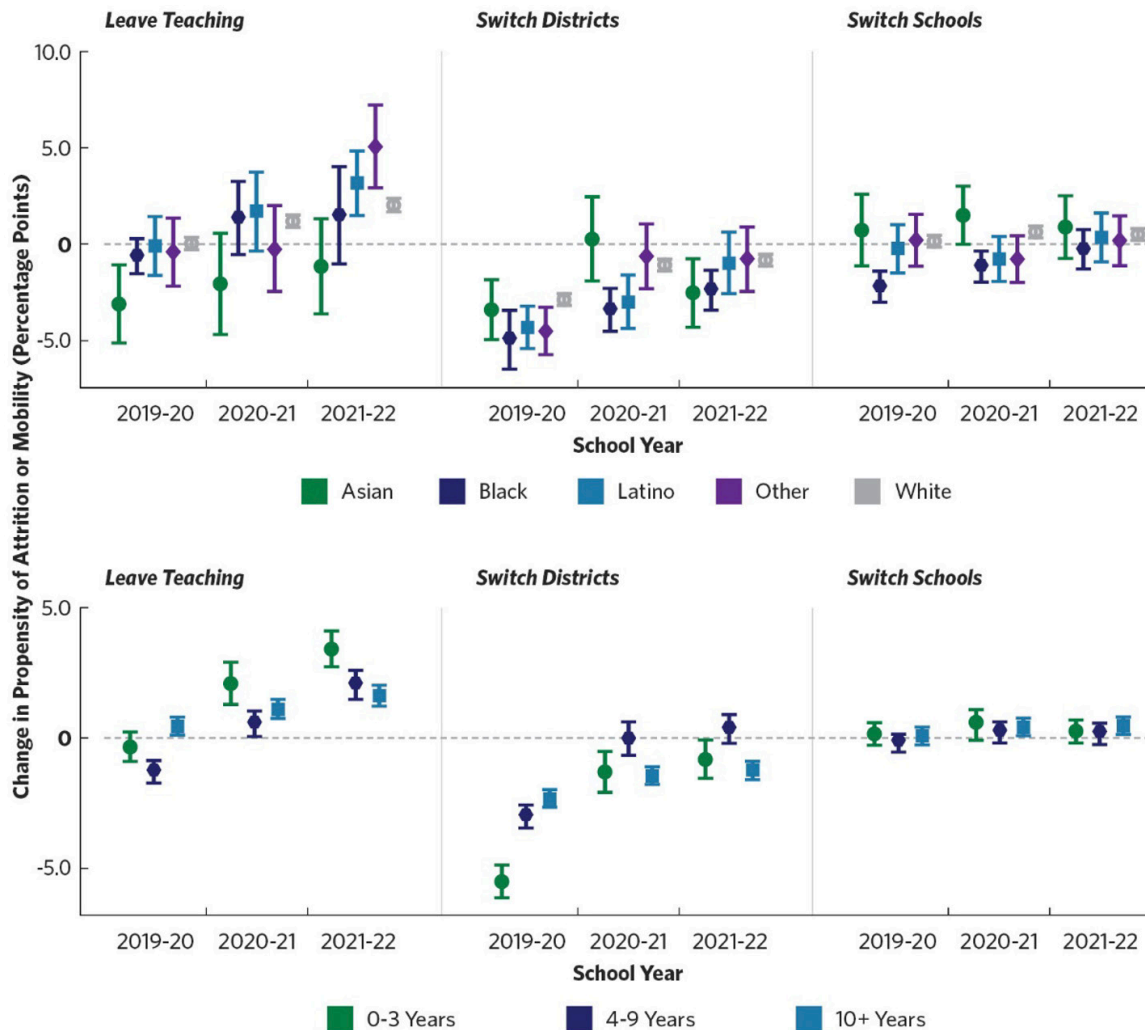
Notes: *All samples include all Michigan public and charter school teachers with a teaching assignment in at least one school year between 2012-13 and 2022-23. The "leave teaching" sample includes all teachers with multiple school or district assignments. The "switch districts" and "switch schools" samples include all Michigan teachers with 100% FTE in their primary school or district, respectively. All models also include teacher-, school-, and district-level controls.*

NOVICE TEACHERS WERE MORE LIKELY TO EXIT THE WORKFORCE DURING THE COVID-19 PANDEMIC THAN THOSE WITH AT LEAST FOUR YEARS OF EXPERIENCE

New and more experienced teachers left the profession and their districts at different rates during the COVID-19 pandemic (see the bottom panel of Figure 3). As the COVID-19 pandemic continued into the 2020-21 and 2021-22 school years, teachers with less than three years of experience in the classroom were increasingly and significantly more likely than their more experienced colleagues to leave the profession altogether. After the 2021-22 school year, novice teachers were 3.4 percentage points more likely to leave the Michigan teacher workforce than teachers in the 2018-19 school year and between 1.0 and 1.5 percentage points more likely to leave than teachers with four or more years of experience. However, novice teachers were considerably less likely than more experienced teachers to switch districts following the 2019-20 school year. District mobility rates were more consistent across experience levels in the following two school years.

Conclusions

If these trends in teacher mobility and attrition persist, Michigan schools and districts will face substantial teacher workforce turnover in the coming school years. With this in mind, we make the following suggestions for Michigan policymakers:

» **1. Given the negative link between teacher turnover and student success, it is critical to continue documenting patterns in teacher mobility and attrition after the COVID-19 pandemic.** This is particularly the case for the specific schools and districts where teacher attrition and within- and across-district mobility increased following the 2020-21 and 2021-22 school years.

» **2. As federal COVID-19 relief funds are exhausted, the state must work with teachers to understand if retention programs enacted during the pandemic mitigated the increase in attrition rates.** The state should hold focus groups, work with teachers unions, or enact a statewide exit interview to determine why teachers remained in the profession throughout the pandemic.

» **3. Schools and districts must continue to find ways to attract new teachers to the profession.** We find that novice teachers in their first three years of teaching were likelier to leave the Michigan teacher workforce after the COVID-19 pandemic than their experienced peers. They were substantially more likely to exit the workforce than they had been pre-pandemic. This finding may reflect a general disillusionment with the profession as teachers were increasingly blamed for interruptions to learning and the substantial missed learning opportunities resulting from the COVID-19 pandemic. As more veteran teachers retire in the coming years, Michigan may face a dearth of teachers, thus exacerbating teacher shortages regardless of efforts to improve the supply of new teachers.

About the National Center for Research on Education Access and Choice (REACH)

Founded in 2018, REACH provides objective, rigorous, and applicable research that informs and improves school choice policy design and implementation to increase opportunities and outcomes for disadvantaged students.

REACH is housed at Tulane University with an Executive Committee that includes researchers from Tulane, Michigan State University, Syracuse University, and the University of Southern California. The research reported here was exclusively funded by the Institute of Education Sciences, U.S. Department of Education, through Grant R305C180025 to The Administrators of the Tulane Educational Fund. The opinions expressed are those of the authors and do not represent the views of the Institute or the U.S. Department of Education.

About the Education Policy Innovation Collaborative (EPIC)

EPIC at Michigan State University is an independent, non-partisan research center that operates as the strategic research partner to the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI). EPIC conducts original research using various methods, including advanced statistical modeling, representative surveys, interviews, and case study approaches.

About the Authors

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Dr. Bryant Hopkins is an Economist at Bates White Economic Consulting. While at EPIC, he studied the effects of the COVID-19 pandemic on academic and non-academic outcomes for Michigan K-12 students. He earned a Bachelor of Science in Mathematics from the University of Alaska Fairbanks, a Master of Arts in Economics from Duke University, and a Master of Arts in Public Administration from New York University. Dr. Hopkins then earned his Ph.D. in Public Administration from NYU, where he received an IES-Predoctoral Interdisciplinary Research Training Fellowship and his dissertation examined the impacts of No Child Left Behind waivers on racial achievement gaps, the efficacy of special education services in NYC, and staffing trends among NYC special education teachers.

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Katharine O. Strunk is the Dean of the Graduate School of Education and the George and Diane Weiss Professor of Education at the University of Pennsylvania. Dr. Strunk served as president of the Association for Education Finance and Policy (AEFP) in 2021–2022. She is a member of the Executive Leadership Board for the National Center for Research on Education Access and Choice (REACH). From 2017 to 2023, she served as director of the Education Policy Innovation Collaborative (EPIC) at Michigan State University, which partners with the Michigan Department of Education and local school districts to craft targeted research that is a priority for policymakers and educators.

Prior to joining Penn GSE, Dr. Strunk was the Clifford E. Erickson Distinguished Chair in Education and a professor of education policy and by courtesy economics at Michigan State University. From 2009 to 2017 she served on the faculty of the University of Southern California's Rossier School of Education and Sol Price School of Public Policy. She began her career at the University of California at Davis School of Education, serving on the faculty from 2007 to 2009.

SALEM ROGERS

Salem Rogers received her PhD in economics at Michigan State University where she studied labor markets and the economics of education. Her research includes the effect of daily secondary school schedules on student outcomes as well as rural school funding. Prior to beginning her studies at MSU, Salem earned her bachelor's in mathematics from UNC Chapel Hill before teaching high school math in North Carolina for five years. As a part of her work at EPIC, Dr. Rogers studies teacher labor markets and their impact on educational outcomes.

Endnotes

[1]Mauriello, T., & Higgins, L. (2022, May 13). Michigan's teacher shortage: What's causing it, how serious is it, and what can be done? Bridge Michigan. **https://www.bridgemi.com/talent-education/michigans-teacher-shortage-whats-causing-it-how-serious-it-and-what-can-be-done**; Natanson, H. (2022, August 4).

'Never seen it this bad': America faces catastrophic teacher shortage. Washington Post. **https://www.washingtonpost.com/education/2022/08/03/school-teacher-shortage/**; Schmitt, J., & DeCourcy, K. (2022, December 6). The pandemic has exacerbated a long-standing national shortage of teachers. Economic Policy Institute. https://www.epi.org/publication/shortage-of-teachers/

[2]In Michigan, individuals with as little as 60 college credits in any subject can be hired as a long-term substitute and staff a classroom for up to one full school year. This requirement was notably waived for existing school employees who could be hired as a substitute teacher, provided they have a high school diploma for the spring of the 2021-22 school year under Michigan Public Act 149, MCL § 380.1233.

[3]Wilkinson, M., & French, R. (2019, August 7). Michigan leans on long-term substitutes as its schools struggle. Bridge Michigan. Retrieved October 12, 2020, from **https://www.bridgemi.com/talent-education/michigan-leans-long-term-substitutes-its-schools-struggle**; Vakil, K. (2020, May 12). Michigan's teacher shortage is so bad the state had to hire 2,500 long-term substitutes. The Gander. Retrieved October 12, 2020, from **https://gandernewsroom.com/2020/02/20/michigans-teacher-shortage-is-so-bad-the-state-had-to-hire-2500-long-term-substitutes/**

[4]Kimball, A. (2020, June 4). Survey of 15,000 Michigan educators shows health and safety concerns paramount in return to in-person learning. Michigan Education Association. Retrieved October 12, 2020, from **https://mea.org/survey-of-15000-michigan-educators-shows-health-and-safety-concerns-paramount-in-return-to-in-person-learning-2/**; Krafcik, M. (2020, August 20). Schools are planning but worry COVID-19 illness might stress substitute teacher ranks. WWMT News Channel 3. Retrieved October 12, 2020, from **https://wwmt.com/news/back-to-school/schools-are-planning-but-worry-covid-19-illness-might-stress-substitute-teacher-ranks**; Hopkins, B., Turner, M., Lovitz, M., Kilbride, T., & Strunk, K.O. (2021, April). A look inside Michigan classrooms: Educators' perceptions of COVID-19 and K-12 schooling in the fall of 2020. Education Policy Innovation Collaborative. **https://epicedpolicy.org/wp-content/uploads/2021/04/Fall_COIVD_Survey_Policy_Brief_April2021.pdf**

[5]While it is possible for teachers to leave the teaching profession and re-enter at a later time, our measure of attrition only identifies a teacher's first time leaving the Michigan school system. Hence, any teacher-year observations for those who re-entered the workforce are not included in this analysis.

[6]Districts in the low tercile were operating in counties with 0 to 15 COVID-19 cases per 100,00 individuals, medium tercile districts had 16-95 cases, and high tercile districts had more than 95 cases. We also estimate models that incorporate cases from September 1, 2020 and January 1, 2021 and find similar results.

[7]We chose September 2020 because districts' modality in this month was the most likely to affect teachers' decisions going into the 2020-21 school year. We also estimate models that group teachers based on the modality their assigned district most commonly offered during the fall 2020 semester as well as the entire 2020-21 school year and find similar results (available from the authors upon request).

[8]French, R. (2020, June 17). With "no way" to stay safe, coronavirus drives Michigan teacher to quit. Bridge Michigan. **https://www.bridgemi.com/talent-education/no-way-stay-safe-coronavirus-drives-michigan-teacher-quit**

[9]Hopkins, B., Kilbride, T., & Strunk, K. (2021). Instructional delivery under Michigan districts' Extended COVID-19 Learning Plans—May update. Education Policy Innovation Collaborative. **https://epicedpolicy.org/ecol-reports/**

[10]In addition to the baseline models estimating teacher attrition and mobility trends across instructional modalities during the 2020-2021 school year, we re-estimate these same models while also controlling for the COVID-19 rates used in the top panel of Figure 2. In these new specifications, we find similar but attenuated trends in teacher attrition and mobility across instructional modalities, and the between-group differences that were statistically significant in the original specification persist.